IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of	
Stephen N. PHILLIPS	Group Art Unit: 2872
Application No.: 09/982,813	Examiner: Craig CURTIS
Filed: October 22, 2001	Confirmation No.: 8278
For: SOLAR CONTROL FILM CONTAINING CARBON BLACK AND PROCESS FOR PREPARING THE SOLAR CONTROL FILM	Appeal No.:

SUPPLEMENTAL APPEAL BRIEF

This appeal is to reinstate the original Appeal Brief filed on October 18, 2004. Since the Appeal fee was previously paid on October 18, 2004, no fee is required for filing the Supplemental Appeal Brief.

The Commissioner is hereby authorized to charge any appropriate fees under 37 C.F.R. §§1.16, 1.17, and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800.

I. Real Party in Interest

The real party in interest with respect to this application is Commonwealth Laminating & Coating, Inc., the assignee of record in this application by virtue of the Assignment submitted on October 22, 2001.

II. Related Appeals and Interferences

There are no other prior and pending appeals, interferences or judicial proceedings known to the Appellant, the Appellant's legal representative, or the assignee which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in this pending appeal.

III. Status of Claims

The claims currently pending in this application are Claims 1-22, 30, and 31. Claims 23-29 were canceled from the application. Claims 1-22, 30, and 31 are being appealed.

IV. Status of Amendments

No amendments were filed after final rejection, or after reopening of prosecution by the Examiner in an Official Action dated December 29, 2004.

V. Summary of Claimed Subject Matter

The claims on appeal are generally directed to a solar control film to be applied to the curved or planar windows of a building or vehicle. Page 1, lines 9-13 of the present application. Solar control films alter the solar energy transmission, reflection, and absorption of the window. Page 1, lines 11-13. As described in the Background section of the application, there are three types of solar control films. Page 2, lines 3-10. The present invention is directed to the type of solar control films that include a thin layer of reflective metal deposited thereon, which increases the reflection level in the infrared wavelengths. Page 2, lines 6-9.

The Background summarizes the problems associated with the use of such metals. As described on page 2, beginning at line 17:

> Depending upon the selection of the metal or metals and the thickness of the metal layer, the film will have a selected visible light transmission (VLT) and a selected visual light reflection (VLR). In general, the VLT and VLR are inversely proportional. If the thickness of the metal layer is increased, VLR is increased and VLT is decreased. In order to achieve an acceptable energy level of solar energy rejection in most climates, the metal layer must be sufficiently thick and dense that visible light transmission is below 50%, frequently 25% or less. Thus, VLT and VLR become competing interests without a middle of the road compromise acceptable to the industry.

That is, while the metal layer can substantially reduce visible light transmission, it provides a high level of internal reflection. Page 12, lines 13-14. This can be dangerous, particular if the solar control film is applied to the inside of a vehicle and it inhibits the driver's vision. Page 12, lines 14-18.

Many attempts have been made to maintain a certain level of visible light transmission, while reducing the visible light reflectance, as described in the Background of the Invention. For example, on page 6, line 3 of the specification, a prior art film is described as including a transparent film and at least one colored

adhesive layer. The colorant used in the adhesive layer can be carbon black, metal oxides or metal powders.

The present invention solves this problem by providing a novel solar control film that incorporates carbon black into a scratch resistant layer, as opposed to an adhesive or intermediate layer, thereby substantially reducing the visible light reflectance while also attaining improved absorption of both infrared and ultraviolet radiation. Page 12, line 20- page 13, line 1.

A. Independent Claim 1

As illustrated in Fig. 1-3 and described on page 8, lines 15-21 and page 18, lines 4-16 of the application, the solar control film comprises:

a) an adhesive layer (1) for adhering the solar control film to a substrate;

b) one (Fig. 1) or two (Fig. 3) metallized layers (2, 2'); and

c) a scratch resistant layer (3) containing dispersed carbon black particles wherein the one or two metallized layers (2, 2') are between the adhesive layer (1) for adhering to a substrate and the scratch resistant layer (3).

B. Independent Claim 30

As illustrated in Fig. 1 and described on page 8, lines 15-21 and page 19, lines 5-13 of the application, the solar control film comprises:

a) an adhesive layer (1) for adhering the solar control film to a substrate;

b) a metallized layer (2); and

c) a scratch resistant layer (3) containing dispersed carbon black particles wherein the metallized layer (2) is between the adhesive layer (1) for adhering to a substrate and the scratch resistant layer (3);

wherein the solar control film has a visible light transmittance of about 10% to about 80%, a visible light reflection of about 0% to 8%, and a haze of less than about 7%.

C. Dependent Claims

1. Claim 7

Claim 7 is dependent upon Claim 1, and further defines that the scratch resistant layer (3) comprises from about 1 to about 10% by weight of the carbon black particles. Page 14, lines 4-6.

2. Claim 8

Claim 8 is dependent on Claim 1, and further defines that the scratch resistant coating comprises from about 2 to about 3% by weight of the carbon black particles. Page 14, lines 4-6.

3. Claim 9

Claim 9 is dependent upon Claim 1, and further defines that the carbon black particles have an average particle size in the range of from about 0.2 to about 5.0 microns. Page 14, lines 1-4.

4. Claim 10

Claim 10 is dependent upon Claim 1, and further defines that the carbon black particles have an average particle size in the range of from about 0.2 to about 0.5 microns. Page 14, lines 1-4.

5. Claim 12

Claim 12 is dependent upon Claim 11, and further defines that the scratch resistant layer includes an acrylic resin that is prepared from a mixture of pentaerythritol triacrylate ester and pentaerythritol tetraacrylate ester. Page 13, lines 13-15.

6. Claim 13

Claim 13 is dependent upon Claim 1, and further defines that the acrylic resin is prepared from a mixture of pentaerythritol triacrylate ester and pentaerythritol tetraacrylate ester. Page 13, lines 13-15.

7. Claim 17

Claim 17 is dependent upon Claim 1, and further defines that the solar control film has a haze of less than about 7%. Page 19, lines 11-13.

8. Claim 20

Claim 20 is dependent upon Claim 19, and further recites a polymeric film including an ultraviolet absorbent. Page 17, lines 7-8.

VI. Grounds of Rejection to be Reviewed

A. Claims 1-11, 14-19, 21, 22, 30, and 31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,034,813 to *Woodard et al.* in view of U.S. Patent No. 3,907,727 to *Lipp.*

B. Claims 12 and 13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,034,813 to *Woodard et al.* in view of U.S. Patent No. 3,907,727 to *Lipp*, and further in view of U.S. Patent No. 4,978,726 to *Dohler et al.*

C. Claim 20 stands rejected under rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,034,813 to *Woodard et al.* in view of U.S. Patent No. 3,907,727 to *Lipp*, and further in view of U.S. Patent No. 6,120,901 to *Ojeda*.

VII. Argument

A. The Rejection under 35 U.S.C. § 103(a) of Claims 1-11, 14-19, 21, 22, 30, and 31 over U.S. Patent No. 6,034,813 to *Woodard et al.* in view of U.S. Patent No. 3,907,727 to *Lipp* is in Error

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP § 2143. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The rejection based on combination of *Woodard et al.* and *Lipp* cannot stand because the Examiner has failed to establish a prima facie case of obviousness. In particular, the Examiner has not provided sufficient evidence as to why one having ordinary skill in the art would incorporate carbon black disclosed by *Lipp* into the

hardcoat layer of the complicated solar control film disclosed by *Woodard et al.* The Examiner only states that "[i]t would have been obvious... to have modified the hardcoat (*read:* scratch-resistant) layer of *Woodard et al.* such that it further comprise [sic] dispersed carbon black particles, motivated by the explicit teaching by Lipp of dispersing carbon black in acrylate sheets, for at least the purpose of reducing the transmittance of infrared radiation through said solar control film, while maintaining good visible transmittance through same, and adequately control haze." This reasoning is not supported by the references.

1. Independent Claim 1

Independent Claim 1 is directed to a solar control film comprising:

a) an adhesive layer for adhering the solar control film to a substrate;

b) one or two metallized layers; and

c) a scratch resistant layer containing dispersed carbon black particles wherein the one or two metallized layers are between the adhesive layer for adhering to a substrate and the scratch resistant layer.

Independent Claim 1 specifies that an adhesive is provided for adhering the solar control film to a substrate. That is, the solar control film provides the solar protection of a substrate to which it is applied.

Woodard et al is directed to wavelength selective applied films with glare control. The solar control film disclosed therein is a complicated structure having multiple layers including an optically massive layer that prevents the constructive and destructive interference of reflected light. This structure is similar to the complicated control film structure described in the background of the invention of the present

application. See, e.g., page 3, lines 13-15. As conceded by the Examiner, *Woodard et al* fails to disclose that a scratch-resistant layer, which the Examiner designates as the hardcoat layer 54, contains dispersed carbon black particles.

The Examiner seeks to rely on *Lipp* for disclosing this feature. *Lipp* discloses dispersing carbon black in acrylic plastics, which are cast into articles such as sunglasses. See column 1, lines 18-21 of *Lipp*. *Lipp* makes no mention of dispersing carbon black into a composite solar control film. Rather, *Lipp* only pertains to a single sheet of material to be cast into the actual substrate, not as a multi-layer solar control film to be deposited on the substrate. In addition, there is absolutely no disclosure in *Lipp* for providing carbon black in a scratch resistant layer of a solar control film. *Lipp* has nothing to do with multi-layer solar control films.

Moreover, as mentioned above, the problem solved by the presently claimed invention is to address the problem of light transmittance without affecting the light reflectance in solar control films containing a metallized layer. Appellant has solved this problem by providing carbon black into the scratch resistant or hardcoat layer of the solar control film. The addition of carbon black into the scratch resistant layer provides novel results, in that it significantly reduces the light reflection without changing the light transmittance, while also providing an aesthetically pleasing tint that does not fade over time. See page 2, lines 1-4. Putting the carbon black into an intermediate layer or into an adhesive layer does not provide the same novel results.

In contrast to the Examiner's position, there is absolutely no motivation to include the feature of dispersing carbon black into the hard coat layer of *Woodard et al*. In particular, the complex solar control film in *Woodard et al* already addresses the problem of light transmittance, and solves this problem through a complex composite of layers. In addition, as noted in Column 6, lines 64-65, a hard coat layer

is described as not being critical to the invention. Accordingly, Appellant submits that one having ordinary skill in the art would not be motivated to combine the teaching of dispersing carbon black into plastics described in *Lipp* in the hard coat layer of the solar control film of *Woodard et al.*

The Examiner originally argued that one having ordinary skill would combine the two references to reduce the haze in the solar control film. Appellant successfully rebutted this argument by pointing to column 4, lines 38-35 of *Lipp*, where a comparison is made between an acrylate sheet having carbon black dispersed therein and one without the carbon black concentrate. According to the results, the sample having carbon black had a haze of 2.2% while the sample not containing carbon black had a haze of 1.7%. From this reading, it is apparent that the carbon black actually *increases* the haze of the acrylate plastic.

The Examiner now revises his reasoning for combining the two references. In particular, the Examiner alleges that "one having ordinary skill in the art at the time the invention was made to have modified the hardcoat layer of *Woodard et al.* such that it further comprise dispersed carbon black particles, motivated by the explicit teaching by *Lipp* of dispersing carbon black in acrylate sheets, for at least the purposes of reducing the transmittance of infrared radiation through said solar control film, while maintaining good visible transmittance through same, and adequately controlling haze." See page 3 of the Official Action dated December 29, 2004.

This reasoning, likewise, fails. In column 5, lines 43-47 of *Lipp*, a comparison is made with an acrylate sheet containing carbon black and nitrocellulose, and an acrylate sheet containing carbon black and no nitrocellulose. The sample containing no nitrocellulose had a haze of about 15% and the sample containing the

nitrocellulose had a haze of about 2.2%. Therefore, it is clear that the presence of the nitrocellulose in the sheet is the reason for haze control, NOT the carbon black as alleged by the Examiner. Therefore, one having ordinary skill in the art would not look to *Lipp* to control the haze by the addition of carbon black, because the nitrocellulose is responsible for haze control, not the carbon black.

Moreover, Appellant submits that the Examiner's general statements regarding "reducing the transmittance of infrared radiation through said solar control film, while maintaining good visible transmittance through same" are gleamed from the present application. It is well established that the Examiner cannot use the specification of the present application as a basis to support an obviousness rejection. To do such would be considered impermissible hindsight.

Finally, the Examiner is improperly applying an "obvious to try" rationale in support of an obviousness rejection. However, the Examiner provides absolutely no credible reasoning as to why one having ordinary skill in the art would place the carbon black in the scratch resistant layer, rather than in an adhesive or intermediate layer. The Examiner has completely failed to address this issue.

Accordingly, neither *Woodard et al* nor *Lipp*, in combination or alone, disclose the patentable features of independent Claim 1, as well as the claims depending therefrom.

2. Independent Claim 30

Similarly, independent Claim 30 defines a solar control film comprising an adhesive layer for adhering the solar control film to a substrate. The film includes a metallized layer and a scratch resistant layer containing dispersed carbon black particles wherein the metallized layer is between the adhesive layer for adhering to a

substrate and the scratch resistant layer. For the same reasons as discussed above with regard to independent Claim 1, neither *Woodard et al* nor *Lipp*, in combination or alone, disclose a feature of the scratch resistance layer containing dispersed carbon black particles.

Independent Claim 30 further defines that the solar control film has a visible light transmittance of about 10% to about 80%, a visible light reflection of about 0% to about 8%, and a haze of less that about 7%. Neither *Woodard et al* nor *Lipp* disclose the feature of a solar control film having a haze of less than about 7%.

Lipp teaches that either a single acrylate sheet impregnated with carbon black or an impregnated acrylate sheet sandwiched between Teflon sheets possesses a relatively low haze. However, nothing contained in *Lipp* suggests that a similar haze value is possessed by the laminate solar control film described by *Woodard et al*, much less a laminate having those features recited in independent Claim 30. In other words, the haze value attributed to the single sheet of *Lipp* (having an entirely different structure) is not probative with regard to the haze value of the complicated multi-component laminate structure of *Woodard et al*, or for that matter, the laminate construed according to the requirements of the presently claimed invention.

Accordingly, neither *Woodard et al* nor *Lipp*, in combination or alone, disclose the patentable features of independent Claim 30, as well as the claims depending therefrom.

3. Dependent Claims 7-10 and 17

In addition to the reasons set forth above with respect to independent Claim 1, Claims 7-10 and 17 are patentable for additional reasons. Similar to the position set forth above with respect to independent Claim 30, the Examiner relies upon the *Lipp*

reference to disclose the particular ranges specified in independent Claims 7-10 and 17. In particular, Claim 7 recites a scratch resistant layer having about 1 to about 10% by weight of carbon black, Claim 8 recites a scratch resistant layer having about 2 to about 3% by weight of carbon black, Claims 9 and 10 recite that the carbon black particles have an average particle size in the range of from about 0.2 to about 5.0 microns, and Claim 17 recites that the solar control film has a haze of less than about 7%.

However, as discussed above with regard to independent Claim 30, each of the ranges disclosed in *Lipp* pertain to the single acrylate sheet disclosed therein, and not to a composite solar control film as defined in the present invention. Therefore, these values have no applicability to the solar control film of the present invention. As such, the rejections of dependent Claims 7-10 and 17 cannot stand.

B. The Rejection under 35 U.S.C. § 103(a) of Claims 12 and 13 over U.S. Patent No. 6,034,813 to *Woodard et al.* in view of U.S. Patent No. 3,907,727 to *Lipp*, and further in view of U.S. Patent No. 4,978,726 to *Dohler et al.* Cannot Stand

Claims 12 and 13 are both dependent upon Claim 1, which the Examiner has rejected over *Woodard et al.* in view of *Lipp*. For the same reasons set forth above, with respect to Claim 1, the rejections of Claims 12 and 13 cannot stand because the combination of *Woodard et al.* and *Lipp* does not teach the claimed features of independent Claim 1.

Moreover, the *Dohler et al.* reference has nothing to do with multi-layer solar control films, as defined by the claims. As such, the Examiner has failed to establish

that the references are properly combinable. Accordingly, withdrawal of the rejection of Claims 12 and 13 is respectfully requested.

C. The Rejection under 35 U.S.C. § 103(a) of Claim 20 over U.S. Patent No. 6,034,813 to *Woodard et al.* in view of U.S. Patent No. 3,907,727 to *Lipp*, and further in view of U.S. Patent No. 6,120,901 to *Ojeda* Cannot Stand

Claim 20 is dependent upon Claim 1, which the Examiner has rejected over *Woodard et al.* in view of *Lipp*. For the same reasons set forth above, with respect to Claim 1, the rejection of Claim 20 cannot stand because the combination of *Woodard et al.* and *Lipp* does not teach the claimed features of independent Claim 1. In addition, it is apparent that the Examiner is perpetuating an "obvious to try" standard, which is not the standard under 35 U.S.C. § 103. Accordingly, withdrawal of the rejection of Claims 20 is respectfully requested.

VIII. Conclusion

For the reasons discussed above, Appellant respectfully submits that the Examiner's decision finally rejecting Claims 1-22, 30, and 31 should be reversed and such action is earnestly solicited.

Respectfully submitted,

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CLAIMS APPENDIX

The Appealed Claims

1. A solar control film comprising:

a) an adhesive layer for adhering the solar control film to a substrate;

b) one or two metallized layers; and

c) a scratch resistant layer containing dispersed carbon black particles wherein the one or two metallized layers are between the adhesive layer for adhering to a substrate and the scratch resistant layer.

2. The solar control film of claim 1 wherein the adhesive layer comprises a pressure sensitive adhesive.

3. The solar control film of claim 1 wherein the adhesive layer comprises a dry adhesive.

4. The solar control film of claim 1 wherein a releasable liner is present on the adhesive layer.

5. The solar control film of claim 1 wherein the metallized layer is comprised of aluminum deposited on a polymeric substrate.

6. The solar control film of claim 5 wherein the polymeric substrate comprises polyethylene terephthalate.

7. The solar control film of claim 1 wherein the scratch resistant layer comprises from about 1 to about 10% by weight of the carbon black particles.

8. The solar control film of claim 1 wherein the scratch resistant coating comprises from about 2 to about 3% by weight of the carbon black particles.

9. The solar control film of claim 1 wherein the carbon black particles have an average particle size in the range of from about 0.2 to about 5.0 microns.

10. The solar control film of claim 1 wherein the carbon black particles have an average particle size in the range of from about 0.2 to about 0.5 microns.

11. The solar control film of claim 1 wherein the scratch resistant layer comprises an acrylic resin.

12. The solar control film of claim 11 wherein the acrylic resin is prepared from a mixture of pentaerythritol triacrylate ester and pentaerythritol tetraacrylate ester.

13. The solar control film of claim 1 wherein the acrylic resin is prepared from pentaerythritol tetraacrylate ester, pentaerythritol triacrylate ester and an acrylated epoxy compound.

14. The solar control film of claim 1 wherein the scratch resistant layer has a thickness in the range of from about 0.5 to about 3.0 microns.

15. The solar control film of claim 1 wherein the scratch resistant layer has a thickness in the range of from about 0.8 to about 1.8 microns.

16. The solar control film of claim 1 wherein the solar control film has a visible light transmittance of from about 10% to about 80% and a visible light reflection of from about 0% to about 8%.

17. The solar control film of claim 1 wherein the solar control film has a haze of less than about 7%.

18. The solar control film of claim 1 further comprising a polymeric film between the adhesive layer and the metallized layer.

19. The solar control film of claim 18 wherein the polymeric film is composed of polyethylene ethylene terephthalate.

20. The solar control film of claim 19 wherein the polymeric film includes an ultraviolet absorbent.

21. The solar control film of claim 18 comprising a plurality of metallized layers.

22. The solar control film of claim 21 wherein a polymeric film is located between adjacent metallized layers.

30. A solar control film comprising:

a) an adhesive layer for adhering the solar control film to a substrate;

b) a metallized layer; and

c) a scratch resistant layer containing dispersed carbon black particles wherein the metallized layer is between the adhesive layer for adhering to a substrate and the scratch resistant layer;

wherein the solar control film has a visible light transmittance of about 10% to about 80%, a visible light reflection of about 0% to about 8%, and a haze of less than about 7%.

31. The solar control film of claim 30, wherein the film comprises no more than two metallized layers.

EVIDENCE APPENDIX

None

RELATED PROEEDINGS APPENDIX

None